

SYSTEMS AND METHODS FOR THERMAL ISOLATION OF A SILICON STRUCTURE

Abstract of the Disclosure

A silicon structure is at least partially thermally isolated from a substrate by a gap formed in an insulation layer disposed between the substrate and a silicon layer in which the silicon structure is formed. In embodiments, the substrate is made of silicon and the silicon layer is made of single crystal silicon. In embodiments, the gap is formed such that a surface of the substrate under the gap is maintained substantially unetched. In other embodiments, the gap is formed without affecting the surface of the substrate underlying the gap. In particular, the gap may be formed by removing a portion of the insulation layer with an etch that does not affect the surface of the substrate underlying the gap. In embodiments the etch is highly selective between the material of the insulation layer and the material of the substrate. The etch selectivity may be about 20:1 or greater.

Figures